

IN THE CLAIMS:

1. (currently amended) A solvent-free polymer electrolyte comprising:

a ~~porous~~ film having a first surface and a second surface, wherein said ~~the porous~~ film comprises a reticulated network of channels forming ~~formed between~~ pores on the first and second surfaces, and is made of a mixture comprising a first polymer and a second oligomer, the first polymer being at least one selected from the group consisting of poly(vinylidene fluoride-co-hexafluoropropylene) copolymers, polyvinylidene fluorides, polymethylmethacrylates, polyacrylonitriles, polyethyleneoxides, and celluloses having a polyether chain, and the second oligomer being at least one selected from the group consisting of poly(ethylene oxide-co-ethylene carbonate) copolymers with at least one terminal groups substituted by a halogen atom and polyethyleneglycols with at least one terminal groups substituted by a halogen atom[[.]]; and ~~and each of the first polymer and the second oligomer being present in the mixture in an amount capable of forming a single phase; and an electrolyte present in the pores of the porous film and comprising the~~ said second oligomer and a lithium salt, said electrolyte partially, or completely filling the pores formed by said network,

wherein said each of the first polymer and the second oligomer is present in the mixture in an amount capable of forming a single phase.

2. (original) The solvent-free polymer electrolyte of claim 1, wherein the weight ratio of the first polymer to the second oligomer is in the range of 95:5 to 35:65.

3. (original) The solvent-free polymer electrolyte of claim 1, wherein in the poly(ethylene oxide-co-ethylene carbonate) copolymer, the molar ratio of ethylene oxide unit to ethylene carbonate unit is in the range of 9:1 to 1:9.

4. (original) The solvent-free polymer electrolyte of claim 1, wherein the lithium salt is at least one selected from the group consisting of  $\text{LiPF}_6$ ,  $\text{LiBF}_4$ ,  $\text{LiClO}_4$ ,  $\text{LiCF}_3\text{SO}_3$ ,  $\text{LiC}_4\text{F}_9\text{SO}_3$ ,  $\text{LiN}(\text{CF}_3\text{SO}_2)_2$ ,  $\text{LiAsF}_6$ , and  $\text{LiN}(\text{SO}_2\text{C}_2\text{F}_5)_2$ .

5. (original) The solvent-free polymer electrolyte of claim 1, wherein the porous film and/or the electrolyte further comprises an inorganic filler.

6. (currently amended) The solvent-free polymer electrolyte of claim 5, wherein the inorganic filler is at least one selected from the group consisting of titanium dioxide ( $\text{TiO}_2$ ), silicon dioxide ( $\text{SiO}_2$ ), alumina ( $\text{Al}_2\text{O}_3$ ), ~~lithium aluminate ( $\gamma\text{-LiAlO}_2$ )~~, and zeolite.

7. (currently amended) A secondary battery comprising: an anode comprising a carbonaceous material;

a cathode comprising a compound enabling intercalation and deintercalation of lithium;  
and

a solvent-free polymer electrolyte interposed between the cathode and the anode, wherein the solvent-free polymer electrolyte comprises:

a porous film having a first surface and a second surface, wherein said ~~the~~ porous film comprises a reticulated network of channels forming ~~formed between~~ pores on the first and

second surfaces, and is made of a mixture comprising a first polymer and a second oligomer, the first polymer being at least one selected from the group consisting of poly(vinylidene fluoride-co-hexafluoropropylene) copolymers, polyvinylidenefluorides, polymethylmethacrylates, polyacrylonitriles, polyethyleneoxides, and celluloses having a polyether chain, and the second oligomer being at least one selected from the group consisting of poly(ethylene oxide-co-ethylene carbonate) copolymers with at least one terminal groups substituted by a halogen atom and polyethyleneglycols with at least one terminal groups substituted by a halogen atom[[,]]; and ~~and each of the first polymer and the second oligomer being present in the mixture in an amount capable of forming a single phase; and an electrolyte present in the pores of the porous film and comprising the~~ said second oligomer and a lithium salt, said electrolyte partially, or completely filling the pores formed by said network,

wherein said each of the first polymer and the second oligomer is present in the mixture in an amount capable of forming a single phase.

8. (original) The secondary battery of claim 7, wherein the weight ratio of the first polymer to the second oligomer is in the range of 95:5 to 35:65.

9. (original) The secondary battery of claim 7, wherein in the poly(ethylene oxide-co-ethylene carbonate) copolymer, the molar ratio of ethylene oxide unit to ethylene carbonate unit is in the range of 9:1 to 1:9.

10. (original) The secondary battery of claim 7, wherein the lithium salt is at least one selected from the group consisting of  $\text{LiPF}_6$ ,  $\text{LiBF}_4$ ,  $\text{LiClO}_4$ ,  $\text{LiCF}_3\text{SO}_3$ ,  $\text{LiC}_4\text{F}_9\text{SO}_3$ ,  $\text{LiN}(\text{CF}_3\text{SO}_2)_2$ ,  $\text{LiAsF}_6$ , and  $\text{LiN}(\text{SO}_2\text{C}_2\text{F}_5)_2$ .

11. (original) The secondary battery of claim 7, wherein the porous film and/or the electrolyte further comprises an inorganic filler.

12. (currently amended) The secondary battery of claim 11, wherein the inorganic filler is at least one selected from the group consisting of titanium dioxide ( $\text{TiO}_2$ ), silicon dioxide ( $\text{SiO}_2$ ), alumina ( $\text{Al}_2\text{O}_3$ ), ~~lithium aluminate~~ ( $\gamma\text{-LiAlO}_2$ ), and zeolite.

13. (original) The secondary battery of claim 7, wherein the compound enabling intercalation and deintercalation of lithium is at least one selected from the group consisting of  $\text{LiCoO}_2$ ,  $\text{LiMnO}_2$ ,  $\text{LiNiO}_2$ ,  $\text{LiCrO}_2$ , and  $\text{LiMn}_2\text{O}_4$ .